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David A Greenlee
P O Box 340557
Columbus, OH 43234-0557

EXAMINER

CONLEY, SEAN E

ART UNIT PAPER NUMBER

1744

DATE MAILED: 10/22/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/701,455

Applicant(s)

ADLER, PAUL E.

Examiner

Sean E Conley

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/27/00 and 2/5/01.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☒ Claim(s) 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claim 15 is objected to because of the following informalities: Claim 15 recites a flow rate of "17 psig" and "30 psig". However "psig" are units of pressure and not volumetric flow rate. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Bunin (U.S. Pat. 5,759,491).

Bunin discloses a process and apparatus for the decontamination of infectious waste. The apparatus includes a hopper (1) for holding solid waste (2) and a conveyor belt (5) for transferring the solid waste to a grinding device (6) for shredding the waste. A pump (9) supplies an aqueous stream from tank (10) to the grinding device in order to form a flowable influent slurry. The aqueous stream may also be conveyed to line (13) through valve (16) and line (17). Furthermore, the aqueous stream may contain

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infectious material such as a sewage effluent. The flow of slurry from the grinding device is controlled by pump (14) and check valve (18). The slurry is then passed through line (13) to a heat exchanger (19) where it is first heated. The slurry then exits the heat exchanger and is heated by a first injection heating means (21) and then a second injection heating means (22). The slurry is then passed through pipe (20) which is configured as a holding section enveloped in thermal insulation and having a length adapted to enable the now hot slurry to maintain its highest temperature for a sufficient time to produce a sterilized slurry. Pipe section (20) then delivers the slurry to heat exchanger (19) where it transfers heat to the confined heat-receiving influent slurry. Pipe section (38) delivers the cooled effluent slurry (41) to a holding tank (35). The holding tank includes a bottom drain line (49) that communicates with a filter or a disposal site. It is noted that the slurry is heated to a temperature of at least 125 degrees C to ensure sterilization and the pressure in the system is maintained by pressure regulating valves (50 and 51) (see columns 1-4 and figure 1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 3, 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin (U.S. Pat. 5,759,491) in view of Aikus et al. (U.S. Pat. 5,498,396).

Bunin discloses a process and apparatus for the decontamination of infectious waste. The apparatus includes a hopper (1) for holding solid waste (2) and a conveyor belt (5) for transferring the solid waste to a grinding device (6) for shredding the waste. A pump (9) supplies an aqueous stream from tank (10) to the grinding device in order to form a flowable influent slurry. The aqueous stream may also be conveyed to line (13) through valve (16) and line (17). Furthermore, the aqueous stream may contain infectious material such as a sewage effluent. The flow of slurry from the grinding device is controlled by pump (14) and check valve (18). The slurry is then passed through line (13) to a heat exchanger (19) where it is first heated. The slurry then exits the heat exchanger and is heated by a first injection heating means (21) and then a second injection heating means (22). The slurry is then passed through pipe (20) which is configured as a holding section enveloped in thermal insulation and having a length adapted to enable the now hot slurry to maintain its highest temperature for a sufficient time to produce a sterilized slurry. Pipe section (20) then delivers the slurry to heat

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exchanger (19) where it transfers heat to the confined heat-receiving influent slurry. Pipe section (38) delivers the cooled effluent slurry (41) to a holding tank (35). The holding tank includes a bottom drain line (49) that communicates with a filter (a further industrial process as recited in claim 8) or a disposal site. It is noted that the slurry is heated to a temperature of at least 125 degrees C (257 degrees F) to ensure sterilization and the pressure in the system is maintained by pressure regulating valves (50 and 51) (see columns 1-4 and figure 1).

However, Bunin does not teach that the fluid handling system is sterilized prior to introduction of the slurry that is to be sterilized.

Aikus et al. disclose a solution sterilization system for sterilizing a fluid such as a parenteral solution or diluent such as saline. The system may also be used to process human and animal consumables. The solution sterilization system (20) is first sterilized by filling or charging the system with high quality steam formed from deionized water provided by a steam generator. This results in a sanitized and pressurized fluid handling system. To sterilize the solution, as shown in figure 2, the supply arrangement (22) supplies a flow of non-sterilized solution from the source through the back-pressure valve "A" and to the first heat exchanger (24) where the solution is rapidly heated to about 135 degrees C (275 degrees F). The solution is then passed to a second heat exchanger (28) where it is rapidly cooled to about 25 degrees C (77 degrees F). Finally, the solution is then passed from the second heat exchanger to a sterile hold tank (29) where it is held until further use (see column 3, line 44 to column 8,

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line 35). Additionally, the solution is supplied at a predetermined flow rate of 4 to 8 liters/minute.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Bunin to include a steam generating means for filling the system with high quality steam as taught by Aikus et al. in order to sterilize the fluid handling system prior to introduction of the slurry which reduces any further contamination of the fluid as it passes through the system.

Regarding claim 4, although Aikus et al. do not teach a time of about 2 minutes they do teach a temperature of about 250 degrees F and it would have been obvious to one having ordinary skill in the art to heat the fluid for a length of time sufficient to sterilize the fluid at the temperature of 250 degrees F which is taught by Aikus et al.

7. Claims 2 and 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aikus et al. in view of Bunin as applied to claims 1 above, and further in view of Rechtsteiner et al. (U.S. Pat. 3,871,824) and Grimberg et al. (U.S. Pat. 5,817,253).

Aikus et al. teaches that the fluid handling system is flushed with a high quality steam in order to sterilize the system. However, Aikus et al. does not teach the step of flushing the system with nitrogen and a sanitizing chemical such as hydrogen peroxide.

Rechtsteiner et al. teach a method of sterilizing a storage tank and associated fixtures connected to it prior to storing bulk materials. The sterilization of the storage tank includes the steps of introducing nitrogen into the tank which fills the unused volume above the bulk material stored therein. The air located in the unused volume

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above the bulk material, which contains oxygen and supports growth of contaminating micro-organisms, is substituted by nitrogen which does not support micro-organism growth (see column 4, lines 5-35). Additionally, the tank can be sterilized by filling the entire interior (16) of the tank (10) with a liquid chemical sterilant thus the interior is placed in a sterile or aseptic condition. The associated fixtures are sterilized with a chemical sterilant by overflowing the storage tank and thus exposing the fixtures to the sterilant (see column 7, lines 7-15).

Grimberg et al. teach a process for the disinfection or sterilization of an article that includes spraying an aqueous hydrogen peroxide mist onto the surface that is to be treated (see column 3, lines 57-66). This reference has been relied upon to teach that a hydrogen peroxide mist has been used for sterilizing surfaces.

Therefore, it would have been obvious to one having ordinary level of skill in the art at the time the invention was made to modify the invention of Aikus et al. and replace the system sterilizing means (flushing with high quality steam) with any other suitable flushing means such as a mist of hydrogen peroxide and nitrogen as taught by the inventions of Rechtsteiner et al. and Grimberg et al. in order to sanitize the fluid handling system of Aikus et al.

Regarding the step of transporting the storage tank to a terminus for offloading of the slurry, it would have been obvious to one having ordinary level of skill in the art at the time the invention was made to further modify the invention of Aikus et al. and make the storage tank portable in order to offload the slurry at a desired location, since it has been held that making an old device portable or movable without producing any new or

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unexpected result involves only routine skill in the art. *In re Lindberg*, 93 USPQ 23 (CCPA 1952). There is no unexpected result by making the storage container portable.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Aikus et al. in view of Bunin as applied to claim 1 above, and further in view of Camden et al. (U.S. Pat. 5,225,221).

Aikus et al. and Bunin do not disclose or suggest a slurry that is selected from the group consisting of kaolin or calcium carbonate.

Camden et al. disclose a method of preparing calcium-supplemented fruit juice beverages. These beverages are prepared by homogeneously dispersing a calcium salt slurry in a pasteurized or sterilized fruit juice stream. Particularly suitable sources of calcium salts for this purpose include calcium carbonate, calcium oxide and calcium hydroxide (see column 7, lines 55-63). It is further disclosed that the calcium salt slurry is preferably sterilized prior to being dispersed in the pasteurized/sterilized juice stream. Camden discloses an example of a calcium hydroxide slurry that is sterilized prior to being dispersed into the juice stream (see column 9, lines 58-60). However, the calcium hydroxide may be replaced with calcium carbonate since they are functionally equivalent calcium supplements as taught in column 7, lines 55-63.

Therefore, it would have been obvious to one of ordinary level of skill in the art at the time the invention was made to sterilize a calcium carbonate slurry using the

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modified apparatus of Aikus et al. since Camden et al. teaches that it is known to sterilize a calcium salt slurry such as a calcium carbonate slurry.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin as applied to claim 11 above, and further in view of Dieterich (U.S. Pat. 3,612,278).

Bunin does not teach a pump that is a peristaltic pump.

Dieterich teaches a waste treatment and disposal system which incorporates a peristaltic pump (45) for transmitting the liquid effluent from the septic tank to the vaporization chamber. The peristaltic pump (45) employs tubular means, preferably concentric tubes, which define two or more separate flow paths for two or more different liquids. In accordance with one form of the invention, the concentric tubes merge into a single tube downstream of the pumping chamber whereby liquids may be intermixed in measured quantities. With this arrangement, chemical agents or other treating liquids such as antifoaming agents or deodorants may be introduced and intermixed with the liquid effluent prior to the introduction of the liquid to the vaporization chamber (see column 1, lines 36-52).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Bunin and replace the pump with an alternative pumping means such as a peristaltic pump as taught by the fluid treatment system of Dieterich.

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10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin as applied to claim 11 above, and further in view of Acernese et al. (U.S. Pat. 5,788,858).

Bunin does not teach a mobile platform to enable transportation to a variety of locations.

Acernese et al. discloses a mobile water purification unit. The water purification unit is mounted to a mobile platform in order to treat municipal water supplies at fire hydrants or other sources of chlorinated water and also to purify water that may have been contaminated by chemical or biological agents (see column 3, line 65 to column 4, line 8). Figure 1 shows the fluid treatment system mounted to a mobile platform which enables transportation to a variety of locations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Bunin to include a mobile platform for mounting the apparatus in order to enable transportation to a variety of locations as suggested by the mobile fluid treatment system of Acernese et al.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin in view of Aikus et al. as applied to claim 1 above, and further in view of Acernese et al.

Bunin and Aikus et al. do not teach a mobile platform to enable transportation to a variety of locations.

Acernese et al. discloses a mobile water purification unit. The water purification unit is mounted to a mobile platform in order to treat municipal water supplies at fire hydrants or other sources of chlorinated water and also to purify water that may have

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been contaminated by chemical or biological agents (see column 3, line 65 to column 4, line 8). Figure 1 shows the fluid treatment system mounted to a mobile platform which enables transportation to a variety of locations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify the invention of Bunin to include a mobile platform for mounting the apparatus in order to enable transportation to a variety of locations as suggested by the mobile fluid treatment system of Acernese et al.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin as applied to claim 11 above, and further in view of Camden et al.

Bunin does not disclose or suggest a slurry that is selected from the group consisting of kaolin or calcium carbonate.

Camden et al. disclose a method of preparing calcium-supplemented fruit juice beverages. These beverages are prepared by homogeneously dispersing a calcium salt slurry in a pasteurized or sterilized fruit juice stream. Particularly suitable sources of calcium salts for this purpose include calcium carbonate, calcium oxide and calcium hydroxide (see column 7, lines 55-63). It is further disclosed that the calcium salt slurry is preferably sterilized prior to being dispersed in the pasteurized/sterilized juice stream. Camden discloses an example of a calcium hydroxide slurry that is sterilized prior to being dispersed into the juice stream (see column 9, lines 58-60). However, the calcium hydroxide may be replaced with calcium carbonate since they are functionally equivalent calcium supplements as taught in column 7, lines 55-63.

Therefore, it would have been obvious to one of ordinary level of skill in the art at the time the invention was made to sterilize a calcium carbonate slurry using the apparatus of Bunin, since Camden et al. teaches that it is known to sterilize a calcium salt slurry such as a calcium carbonate slurry.

13. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin as applied to claim 11 above, and further in view of Aikus et al. (U.S. Pat. 5,603,894).

Bunin does not teach a second or third heat exchanger.

Aikus et al. disclose a method of sterilizing a composition wherein the method comprises providing a sterilization system that includes a heat exchanger means for elevating and then lowering the temperature of a fluid in a time period (see column 2, lines 15-32). Figure 1 shows the heat exchangers (5, 10, 15, 20) with heat exchangers (5) and (10) being a heating means and (15) and (20) being a cooling means. The heat exchangers may comprise any heating device that is known to those skilled in the art that can increase or decrease the temperature of the solution being sterilized. For example, the heat exchanger can use steam, radiant energy, or electrical energy to heat the composition. The plurality of heat exchangers may also be used in series to obtain the heating and cooling profile desired. For example, the sterilization system can comprise four heat exchanger means, where two adjacent heat exchangers are used for heating the solution and two adjacent heat exchangers are used to cool the solution (see column 3, lines 26-54). This reference has been relied upon to teach that it is well

known to use multiple configurations of heat exchangers to heat and cool a fluid that is being sterilized.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Bunin and add a second and third heat exchanger to the system of Bunin as taught by Aikus et al. in order to obtain a desired heating and cooling profile.

14. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bunin in view of Aikus et al. as applied to claim 1 above, and further in view of Luker (U.S. Pat. 5,888,453).

Bunin and Aikus et al. do not specifically teach a hot water boiler for heating water to a desired temperature or a second piping circuit interconnecting the hot water boiler, the second heat exchanger, and the third heat exchanger. However, Aikus et al. does recite that the heat exchangers can use any device that is known to those skilled in the art that can increase or decrease the temperature of a solution. Steam is one example that is disclosed, thus implying that a boiler is used to heat water to its boiling point in order to form the steam.

Luker discloses a continuous flow sludge pasteurization system that includes a heat exchanger, a source of heat for introducing into the heat exchanger, and an inlet for introducing liquid slurry of sludge into the heat exchanger. The source of heat for the heat exchanger is a boiler (24), which heats water to 180 degrees F and supplies the water to the heat exchanger via piping circuit (26) (see column 2, lines 25-39,

column 3, lines 1-25 and figure 1). Although a pump for pumping the water is not specifically disclosed it is inherent that a pump would be required to move the hot water from the boiler to the heat exchanger.

Therefore, it would have been obvious to one having ordinary level of skill in the art at the time the invention was made to further modify the invention of Bunin to include a boiler and pipe with pumping means in order to supply heated water to the second and third heat exchanger as taught by the boiler and heat exchanger apparatus to Luker.

Regarding the flow rate recited in claim 15, Bunin and Aikus et al. teach the claimed invention except for a first predetermined flow rate of 17 gpm and a second predetermined flow rate of 30 gpm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a suitable predetermined flow rate such as 17 gpm and 30 gpm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPW 233 (CCPA 1955)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean Conley, whose telephone number is (703) 305-2430. The examiner can normally be reached on Monday-Friday 7:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Robert Warden, can be reached at (703) 308-2920. The Unofficial fax

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phone number for this group is (703) 305-7719. The Official fax phone number for this Group is (703) 872-9310. The direct fax number to the examiner is (703)-746-8859.

When filing a FAX in Technology Center 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of the application. This will expedite the processing of your papers.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [robert.warden@uspto.gov]. All Internet e-mail communications will be made of record in the application file. PTO employees will not communicate with applicant via internet e-mail where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is of record express waiver of the confidentiality requirements under 35 U.S.C. 122 by the applicant. See the Interim Internet Usage Policy published by the Patent and Trademark Office Official Gazette on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist, whose telephone number is (703) 308-0661.

SEC

Ac

October 8, 2003

Robert J. Warden, Sr.
ROBERT J. WARDEN, SR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700